

REMARKS

Claims 1-42 are pending in the application. The position set forth in the Final Office Action has been carefully considered. After final reconsideration is respectfully requested.

Claims 1-42 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,453,472 (“Leano”) in view of U.S. Patent No. 6,212,399 (“Kumar”). All pending claims are believed to be allowable for at least the following reasons. Withdrawal of the rejection is respectfully requested.

The present invention defined in independent claims 1, 11, 16, 24, 27, and 32 relates to methods, cable modem termination systems, and computer program products which adjust a power or frequency used by a cable modem. As explained in the response to the first office action, all claims require a power adjustment based on a plurality of power/frequency measurements, an average of the power measurements, etc.

Applicants acknowledge that the cited Leano reference discusses most elements of the independent claims. However, the Examiner conceded in the Office Actions that Leano does not teach adjustment based on a plurality of recent power measurements. This difference was deemed by the Examiner to be an obvious variation and Kumar was cited in support of this position. Applicants respectfully submit that the prior art fails to provide motivation to combine the teachings of these two references in a manner that suggests the claimed invention.

The Examiner argues that the wireless terminal described in the Leano patent can be modified to analyze a plurality of power measurements (as opposed to merely analyzing power control signals b_i as described in Kumar). Of course this is true, but there must be some suggestion or motivation in the references to make the modification. And even if there is such motivation in one of the references (Kumar for example), there must be some reason, suggestion, or motivation found in the prior art directing a person of ordinary skill to make the combination.

As discussed in response to the first office action, the wireless terminal (usually a cell phone) in the Kumar patent considers a plurality of the power control signals b_i (column 6, lines 37-60) in calculating a dispersion D, which is used to determine the size of any power adjustment for the next signal transmitted by the terminal. The power control signals b_i represent either “+1” or “-1,” which is a command from the base station 501 to the wireless terminal 502 in order to increase or decrease, respectively, transmit power level (column 5, lines 33-37). As explained in the previous response, the power *control signals* are distinctly not power or frequency *measurements* as recited in the claims.

Neither reference describes using a plurality of power or frequency measurements. Leano uses a single power measurement. And Kumar uses a plurality of "power control signals" at a terminal.

So the question, as framed by the Examiner, is whether the fact that Kumar describes using a plurality of power control signals to determine how to adjust transmission power in a cell phone would motivate one of skill in the art to modify Leano to use multiple power measurements in determining how to adjust a transmission power or frequency used by a cable modem.

Kumar's relevance is simply in using a technique that makes use of multiple data points. A fair reading of Kumar does not suggest that these points can or should be power measurements. As explained, they are something distinctly different. The leap from Kumar's control signals in a cellular system to Leano's power measures in a cable modem system is too great. For this reason, it is respectfully submitted that a skilled practitioner upon reading Kumar and Leano would not be motivated to employ multiple power measurements in Leano's CMTS.

While there may be a number of different engineering considerations in designing a control system for transmission power from a cable modem versus transmission power from a mobile wireless terminal, these will not be dwelt upon here. Suffice it to say that the technological issues encountered with the Leano cable modem system are frequently different from the issues encountered with the Kumar mobile wireless cell system.

The Kumar patent describes a system in which a wireless terminal 502 receives and analyzes a power control signal b_i (sent by a base station) in order to control its power level. The Kumar system uses a dispersion D which is derived from a plurality of the power control signals b_i (column 6, lines 37-60). The power control signals of Kumar do not represent "power measurements" as claimed. Rather, the Kumar power control signals b_i represent either "+1" or "-1," which is a command from the base station 501 to the wireless terminal 502 in order to increase or decrease, respectively, transmit power level (column 5, lines 33-37). A power control signal b_i is determined by comparing a signal quality with a target quality (i.e., an SIR target) (column 5, lines 53-59). As explained, this is not related to a power measurement as recited in the claims.

In the Final Office Action, the Examiner asserts that "it would have been obvious ... to modify the single power sampling techniques taught by Leano with the sampling of multiple power data signals as taught by Kumar in order to sample power data over time thereby avoiding large, instantaneous fluctuations in power signals (emphasis added)." First, it is noted the above-identified underlined portion of the Examiner's statement is not from the cited references, but from Applicants' own application. It is respectfully submitted that Kumar does not profess

concern with large instantaneous fluctuations. As the background section of Kumar explains, Kumar wishes to determine a cell phone transmission power that addresses two competing concerns: *quality* of the signal received at the base station and interference with other cell phone transmissions. The power control signal technique used in Kumar merely attempts to keep the cell phone transmissions close to a target quality (the SIR target). Kumar does not explain why one should use multiple control signals received at a cell phone terminal.

The simple fact is that the Kumar patent merely teaches that the system may analyze multiple control signals. Kumar uses multiple power control signals from a base station. These are derived by the base station from a comparison with a target quality (the SIR target, which is based on error rates, signal-to-interference ratio, etc.). See column 2 of Kumar. Leano uses one simple power measurement – the criterion that is most relevant in the context of a cable modem system.

In view of the foregoing, it is respectfully submitted that the requisite motivation and/or suggestion to combine the references are not found in the references themselves. Withdrawal of the rejections is respectfully requested.

Regarding claim 24, neither Leano nor Kumar teach or suggest “a frequency adjustment using a plurality of recent frequency measurements.” Applicants respectfully submit that Kumar’s power control signals are very far removed from the “frequency measurements” of claim 24. Thus, there are additional reasons why the invention of claim 24 is not obvious from the cited art.

And, in addition to the reasons set forth above, claim 16 is patentable over the cited references for the following reasons. Claim 16 requires a CMTS having “(b) means for calculating a single power level adjustment for the cable modem based upon a plurality of the detected power levels,” and “(c) means for generating instructions to the cable modem to make the calculated power adjustment.” The Examiner acknowledges that Leano fails to teach the above feature (b), i.e., calculation of adjustment based on “a plurality of the detected power levels.” As explained above, the combination of Leano and Kumar fails to suggest (b).

In addition, Kumar fails to suggest the feature (c) because, in Kumar’s system, the wireless terminal 502 itself, not the base station 501, receives the power control signals b_i , and uses them to determine how much power adjustment is proper. See, Kumar, column 6, lines 37-60. Thus, Kumar is not concerned with calculating a power level adjustment at a CMTS (or base station) and generating instructions to a downstream terminal sent from a base station. Rather, in Kumar, power adjustment is calculated and performed within the wireless terminal 502 without any instructions from the base station 501. It is respectfully submitted that Kumar is not

properly combinable with Leano for purposes of claim 16. Accordingly, it is respectfully submitted that claim 16 is separately patentable over Leano and Kumar.

Claims 36-40 also require "sending instructions from the headend to the cable modem." Those instructions pertain to adjustments calculated from a plurality of measurements. For at least the reasons set forth above in connection with claim 16, Leano and Kumar cannot be said to teach or suggest the claimed feature of claims 36-40. Thus, claims 36-40 are believed to be patentable over the cited art.

Claims 41 and 42 correspond to claims 1 and 11, respectively, in so far as the rejections are concerned. Thus, claims 41 and 42 are believed to be allowable for at least the same reasons set forth in connection with claims 1 and 11.

CONCLUSION

Applicants believe that all pending claims are in condition for allowance, and respectfully request a Notice of Allowance at an early date. If the Examiner believes a telephone conference would expedite prosecution of this application, please telephone the undersigned at 510-843-6200.

Respectfully submitted,
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